

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (previously presented), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (previously presented) A laser engravable printing element which is a photocured resin composition comprising:

(a) 100 parts by weight of a resin which is in a solid state at 20 °C, wherein said resin has a number average molecular weight of from 5,000 to 300,000,

(b) 5 to 200 parts by weight, relative to 100 parts by weight of said resin (a), of an organic compound having a number average molecular weight of less than 5,000 and having at least one polymerizable unsaturated group per molecule, and

(c) 1 to 100 parts by weight, relative to 100 parts by weight of said resin (a), of ~~an~~ inorganic porous particles having an average pore diameter of from 1 nm to 1,000 nm, a pore volume of from 0.1 ml/g to 10 ml/g and a number average particle diameter of not more than 10 μm ,

said laser engravable printing element being obtained by shaping said resin composition into a sheet or cylinder, and irradiating the shaped resin composition with a light or an electron beam to thereby photocure said resin composition.

2. (previously presented) The laser engravable printing element according to claim 1, wherein said inorganic porous material (c) has a specific surface area of from 10 m^2/g to 1,500 m^2/g and an oil absorption value of from 10 ml/100 g to 2,000 ml/100 g.

3. (previously presented) The laser engravable printing element according to claim 1 or 2, wherein at least 30 % by weight of said resin (a) is at least one resin selected from the group consisting of a thermoplastic resin having a softening temperature of 500 °C or less and a solvent-soluble resin.

4. (previously presented) The laser engravable printing element according to claim 1 or 2, wherein at least 20% by weight of said organic compound (b) is a compound having at least one functional group selected from the group consisting of an alicyclic functional group and an

aromatic functional group.

5. (previously presented) The laser engravable printing element according to claim 1 or 2, wherein said inorganic porous particles (c) are spherical particle or a regular polyhedral particle.

6. (previously presented) The laser engravable printing element according to claim 5, wherein at least 70 % of said inorganic porous particles (c) are spherical particles each having a sphericity of from 0.5 to 1.

7. (previously presented) The laser engravable printing element according to claim 5, wherein said inorganic porous particles (c) are regular polyhedral particles each having a D_3/D_4 value of from 1 to 3, wherein D_3 represents the diameter of a smallest sphere which encloses said regular polyhedral particle therein and D_4 represents the diameter of a largest sphere which is enclosed in said regular polyhedral particle.

8. (previously presented) The laser engravable printing element according to claim 1 or 2, which is for use in forming a relief printing element.

9. (cancelled)

10. (previously presented) A multi-layered, laser engravable printing element comprising a printing element layer and at least one elastomer layer provided below the printing element layer, wherein said printing element layer is made of the laser engravable printing element of claim 1 and said elastomer layer has a Shore A hardness of from 20 to 70.

11. (original) The multi-layered, laser engravable printing element according to claim 10, wherein said elastomer layer is formed by photocuring a resin which is in a liquid state at 20 °C.

12. (previously presented) A method for producing a laser engraved printing element, which comprises:

(i) forming a photocurable resin composition layer on a support, wherein said photocurable resin composition layer is obtained by shaping a resin composition comprising the following components (a), (b) and (c) into a sheet or cylinder,

(a) 100 parts by weight of a resin which is in a solid state at 20 °C, wherein said resin has a number average molecular weight of from 5,000 to 300,000,

(b) 5 to 200 parts by weight, relative to 100 parts by weight of said resin (a), of an organic compound having a number average molecular weight of less than 5,000 and having at least one polymerizable unsaturated group per molecule, and

(c) 1 to 100 parts by weight, relative to 100 parts by weight of said resin (a), of inorganic porous particles having an average pore diameter of from 1 nm to 1,000 nm, a pore volume of from 0.1 ml/g to 10 ml/g and a number average particle diameter of not more than 10 μm ,

(ii) crosslink-curing said photocurable resin composition layer by light or electron beam irradiation, thereby obtaining a cured resin composition layer, and

(iii) irradiating a portion of said cured resin composition layer which is preselected in accordance with a desired relief pattern, with a laser beam to ablate and remove the irradiated portion of said cured resin composition layer, thereby forming a relief pattern on said cured resin composition layer.

13. (original) The method according to claim 12, wherein said irradiation of the portion of the cured resin composition layer with a laser beam is performed while heating said portion.

14. (previously presented) The laser engravable printing element of claim 1 wherein said resin composition further comprises a photopolymerization initiator.

15. (previously presented) A laser engravable printing element which is a photocured resin composition comprising:

(a) 100 parts by weight of a styrene-butadiene copolymer resin which is in a solid state at 20 °C, wherein said resin has a number average molecular weight of from 10,000 to 100,000,

(b) 20 to 100 parts by weight, relative to 100 parts by weight of said resin (a), of at least one methacrylate organic compound having a number average molecular weight of less than 5,000 and having at least one polymerizable unsaturated group per molecule, and

(c) 2 to 20 parts by weight, relative to 100 parts by weight of said resin (a), of silica inorganic porous particles having an average pore diameter of from 2 nm to 30 nm, a pore volume of from 0.1 ml/g to 10 ml/g and a number average particle diameter of not more than 10 μm ,

said laser engravable printing element being obtained by shaping said resin composition into a sheet or cylinder, and irradiating the shaped resin composition with a light or an electron beam to thereby photocure said resin composition, wherein

said inorganic porous material (c) has a specific surface area of from 10 m²/g to 1,500 m²/g and an oil absorption value of from 10 ml/100 g to 2,000 ml/100 g, and

said inorganic porous particles (c) are spherical particle or a regular polyhedral particle.

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